



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,863	08/05/2003	Richard Hull	B-5188 621137-4	1065
7590	11/16/2005			
			EXAMINER	
			HEIN, GREGORY P	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/635,863	HULL, RICHARD	
	<b>Examiner</b> Gregory P. Hein	<b>Art Unit</b> 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 August 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-48 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6, 20, 25 - 30, 36, 44, and 46 is/are rejected.
- 7) Claim(s) 7 - 19, 21 - 24, 31 - 35, 37 - 43, 45, 47 - 48 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)              |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/31/2005</u> . | 6) <input type="checkbox"/> Other: _____.  |

## DETAILED ACTION

### ***Information Disclosure Statement***

1. The information disclosure statement filed 11/3/2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the documents listed as:

Payton, D., et al., "Pheromone Robotics." HRL Laboratories, 32 pages total.

Spasojevic, M., et al., "A Study of an Augmented Museum Experience." 6 pages total.

Do not cite a publication date or a place of publication.

Additionally, the documents listed as:

Dorigo, M., et al., "Ant colonies for the traveling salesman problem." Biosystems. pp 1-10 (1997).

Payton, D., et al., "Progress in Pheromone Robotics." HRL Laboratories, 9 pages total (2001).

Do not cite complete publication dates or place of publication.

2. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

### ***Drawings***

3. The drawings submitted on 08/05/2003 are approved by the examiner.

***Claim Objections***

4. Claims 2 – 20 and 26 - 44 objected to because of the following informalities:

5. As per claim 2, line 2 cites "the distance" and "the location" and line 3 cites "the user's current location". These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with "a distance", "a location", and "said user's current location", respectively.

As per claim 4, line 2 cites "the location" and line 3 cites "the onward track" and "the user's current location" and "the user." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with "a location", "an onward track", "said user's current location", and "said user", respectively.

As per claim 5, line 2 cites "the distance" and "the location" and line 3 cites "the onward track" and "the user's current location." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with "a distance", "a location", "an onward track", and "said user's current location", respectively.

As per claim 6, line 2 cites "previous users" and line 4 cites "the current user's progress." This subject is open to interpretation as lacking antecedent basis. Examiner recommends, "a plurality of previous users", "said user's progress", respectively. Examiner interprets "said user" as the current user introduced in claim 1. Additionally, removal of 'current' would resolve potential ambiguity with respect to later references to "the user's current location."

As per claim 7, line 4 cites "the track" and line 7 cites "the location".

These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a track" and "a location", respectively.

As per claim 8, line 3 cites "the same location". This subject is open to interpretation as lacking antecedent basis. Examiner recommends "a same location."

As per claim 10, line 5 cites "the track" and line 7 cites "the distance" and "the location." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a track", "a distance", and "a location", respectively.

As per claim 12, line 1 cites "the identity." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "an identity."

As per claim 13, line 1 cites "virtual features." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "a plurality of virtual features." Line 3 cites "a said feature." Use of said here introduces ambiguity as to which of the plurality of virtual features is being referenced. Examiner recommends "a one of said plurality of virtual features."

As per claim 14, line 1 cites "the current user's progress." Use of 'current' here introduces ambiguity as to which user is being referenced. Examiner interprets "said user's progress" as referring to the user introduced in claim 1, line

1. As written, claim 14 depends from claim 6. Should claim 14 depend from claim 13?

As per claim 15, line 1 cites "virtual features" and line 4 cites "the sequence." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a plurality of virtual features" and "a sequence", respectively. Line 2 cites "a said feature." Use of 'said' here introduces ambiguity as to which of the multiple virtual features cited in line 1 is referenced. Examiner recommends "a one of said plurality of virtual features."

As per claim 16, line 1 cites "the identity." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "an identity." As written, claim 16 depends from claim 6. Should claim 16 depend from claim 15.

As per claim 17, line 2 cites "a said feature." Use of 'said' here introduces uncertainty as to which of the multiple virtual features cited in line 1 is referenced.

As per claim 18, line 2 cites "the sequence." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "a sequence." As written claim 18 depends from claim 6. Should claim 18 to depend from claim 17.

As per claim 19, line 2 cites "a said feature." Use of 'said' here introduces uncertainty as to which of the multiple virtual features cited in line 1 is referenced.

As per claim 26, line 2 cites "the distance" and "the location" and line 3 cites "the user's current location". These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with "a distance", "a location", and "said user's current location", respectively.

Art Unit: 2188

As per claim 27, line 3 cites “the user’s progression.” This subject is open to interpretation as lacking antecedent basis. Examiner suggests “said user’s progression.”

As per claim 28, line 2 cites “the distance” and “the location” and line 3 cites “the onward track” and “the user’s current location.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with “a distance”, “a location”, “an onward track”, “said user’s current location”, respectively.

As per claim 29, line 2 cites “the distance” and “the location” and line 3 cites “the onward track” and “the user’s current location” and line 4 cites “the user’s recent movement.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends replacing the above with “a distance”, “a location”, “an onward track”, and “said user’s current location” and “said user’s recent movement”, respectively.

As per claim 30, line 2 cites “previous users” and line 4 cites “the value” and line 5 cites “the current user’s progress.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends, “a plurality of previous users”, “a value”, and “said user’s progress.” Examiner interprets “the current user’s progress” as the user introduced in claim 1. Additionally, removal of ‘current’ would resolve potential ambiguity with respect to later references to “the user’s current location.”

As per claim 31, line 5 cites “the tracks” and line 6 cites “previous users” and line 8 cites “the distance” and “the location.” These subjects are open to

Art Unit: 2188

interpretation as lacking antecedent basis. Examiner recommends “a plurality of tracks” and “said previous users”, “a distance”, and “a location”, respectively.

As per claim 32, line 3 cites “previous users.” This subject is open to interpretation as lacking antecedent basis. Examiner recommends “said previous users.”

As per claim 34, line 3 cites “previous users” and line 6 cites “the tracks” and line 8 cites “the distance” and line 9 cites “the location.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends “said previous users”, “a plurality of tracks”, “a distance”, and “a location”, respectively.

As per claim 35, it is equivalent to claim 34. Lines 1 and 4 cite “the users recent movement” and line 3 cites “previous users.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends, “said users recent movement” and “said previous users”, respectively. Should claim 35 depend from claim 34?

As per claim 36, line 1 cites “the identity of the item” and line 3 cites “previous users” and line 4 cites “the users recent movement.” These subjects are open to interpretation as lacking antecedent basis. Examiner recommends “an identity of said item”, “said plurality of previous users”, and “said users recent movement”, respectively.

As per claim 37, line 1 cites “virtual features.” This subject is open to interpretation as lacking antecedent basis. Examiner recommends, “a plurality of virtual features.” Line 3 cites “a said feature.” Use of ‘said’ here introduces ambiguity as to which of the plurality of features is being referenced. Examiner

Art Unit: 2188

recommends "a one of said plurality of virtual features." Should claim 37 depend from claim 36?

As per claim 38, line 5 cites "the sequence." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "a sequence."

As per claim 39, line 1 cites "virtual features" and line 4 cites "the sequence" and line 7 cites "previous users." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a plurality of virtual features", "a sequence", and "said plurality of previous users." Line 3 cites "a said feature." Line 3 cites "a said feature." Use of 'said' introduces ambiguity as to which of the plurality of virtual features is being referenced. Examiner recommends "a one of said plurality of virtual features." Should claim 39 depend from claim 38?

As per claim 40, line 1 cites "the identity" and line 3 cites "previous users." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "an identity" and "said previous users", respectively.

As per claim 41, line 1 cites "virtual features." This subject is open to interpretation as lacking antecedent basis. Examiner recommends "a plurality of virtual features." Line 3 cites "a said feature." Use of 'said' here introduces ambiguity as to which of the plurality of features of being referenced. Examiner recommends "a one of said plurality of virtual features." Should claim 41 depend from claim 40?

As per claim 42, line 2 cites "the sequence" and line 4 cites "previous users." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a sequence" and "said previous users", respectively.

As per claim 43, line 1 cites "virtual features" and line 4 cites "the sequence" and line 7 cites "previous users." These subjects are open to interpretation as lacking antecedent basis. Examiner recommends "a plurality of virtual features", "a sequence", and "said previous users", respectively. Should claim 43 depend from claim 42?

All dependent claims are objected to as having the same deficiencies as the claim they depend from.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 – 6, 20, 25 – 30, 36, 44, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pre-Grant publication 2003/0060973 Mathews.

As per claim 1, Mathews teaches:

A method of managing a cache (Mathews ¶42 lines 1 – 4 disclose "... the caching component actively attempts to depict which data will be needed in the future...") of a mobile device carried by a user (Mathews ¶44 lines 8 – 11 discloses "This

configuration is useful for handheld or portable devices, such as PDA's equipped with a wireless modem and a GPS, or in-dash telematics systems."), the cache being used for storing items associated with locations in a real-world space being visited by the user; the method comprising the steps of:

- (a) Determining the probability of usage of an item in dependence on the user's progress around the space; (Mathews ¶16 lines 11 – 16 "Predicted events" is interpreted to mean events with a high probability of occurrence. Additionally, Mathews teaches using a "probability of occurrence" in ¶62)
- (b) Changing the contents of the cache by adding or removing an item on the basis of the determination carried out in step (a) in respect of that item or other items (Mathews ¶15 lines 8 – 11 teaches using cache to optimize device performance).

As per claim 2, Mathews teaches:

Step (a) said probability of usage is determined on the basis of the distance between the location associated with said item and the user's current location in said space (Mathews ¶62 lines 1 – 6 disclose estimating probabilities of events based on location and estimated time of occurrence based on predicted trajectory).

As per claim 3, Mathews teaches:

Step (a) includes reducing said probability of usage where said item is associated with a location lying in a wake region extending behind the user with respect to the user's progression through the space (Mathews ¶62 discloses predicting event occurrence probabilities based on temporally based even

Art Unit: 2188

ordering. Specifically, lines 3 – 5 disclose “Events occurring earlier than other events typically have a higher probability of occurrence....” It is inherent to this type of probabilistic model that events that have already occurred would be assigned a zero probability).

As per claim 4, Mathews teaches:

Step (a) said probability of usage is determined on the basis of the distance between the location associated with said item and the onward track from the user's current location of a planned route being followed by the USCC (Mathews ¶36 lines 15 – 18 teaches generating guidance data based on changes in the physical location. This is equivalent to giving guidance information based on proximity or distance.)

As per claim 5, Mathews teaches:

Step (a) said probability of usage is determined on the basis of the distance between the location associated with said item and the onward track from the user's current location as predicted on the basis of the user's recent movement in said space (Mathews ¶48 lines 5 – 9 teaches “...an assumption that the NPO does not significantly deviate from the anticipated trajectory...” This is equivalent to providing data based on the user's current onward track since the data is provided based on a predicted path.)

As per claim 6, Mathews teaches:

Step (a) said probability of usage is determined using visit history data of previous users that have visited the space, step (a) including identifying relevant visit history data for use in determining said probability of usage by matching the

value of an indicator of the current user's progress around the space with values of that indicator in said visit history data (Mathews ¶73 lines 3 – 9 teaches "...a guidance function can provide a feature that allows multiple navigation sessions to follow a first navigation session..." The function gives users a path to follow based on the paths traversed by a previous user. This is equivalent to plotting an expected path based on previous user visit history.)

As per claim 20, Mathews teaches:

In step (a) said probability of usage is determined using portions of said visit history data that are relevant to the progression onward of the current user, said visit history data being data about one of:

- The items, or groups of associated items, next visited by said previous users; (Mathews ¶73 lines 3 – 9)
- The items next accessed for presentation, or the groups of items with which those items are associated, by said previous users;
- The items next delivered, or requested for delivery, to the mobile-device caches of said previous users.

As per claim 25, Mathews teaches:

An arrangement for managing a cache of a mobile device carried by a user (Mathews ¶44 lines 8 - 11), the cache being usable for storing items associated with locations in a real-world space being visited by the user (Mathews ¶42 lines 1 - 4); the arrangement comprising:

- Prediction means for determining the probability of usage of an item in dependence on the user's progress around the space (Mathews ¶42 lines

4 – 13 disclose “The algorithms used for predicting which data will be needed can use information from various data sources … current location, predicted location given speed and heading, predicted location according to a predetermined route…”); and

- A cache manager for changing the contents of the cache by adding or removing an item on the basis of the determination carried out by the prediction means in respect of that item or other items (Mathews ¶42 lines 1 – 3 “…the caching component actively attempts to predict which data will be needed in the future, and will initiate data requests from the other components before the data is actually needed.”

As per claim 26, Mathews teaches:

The prediction means is arranged to determine said probability of usage on the basis of the distance between the locations associated with said item and the user's current location in said space (Mathews ¶36 lines 15 – 18 teaches changing the guidance information in response to changes in physical location. This is equivalent to making changes based on proximity or distance.)

As per claim 27, Mathews teaches:

The prediction means includes means for reducing said probability of usage where said item is associated with a location lying in a wake region extending behind the user with respect to the user's progression through the space (Mathews ¶62 discloses predicting event occurrence probabilities based on temporally based even ordering. Specifically, lines 3 – 5 disclose “Events

occurring earlier than other events typically have a higher probability of occurrence...." It is inherent to this type of probabilistic model that events that have already occurred would be assigned a zero probability).

As per claim 28, Mathews teaches:

The prediction means is arranged to determine said probability of usage on the basis of the distance between the location associated with said item and the onward track from the user's current location of a planned route being followed by the user (Mathews ¶42 lines 7 - 13).

As per claim 29, Mathews teaches:

The prediction means is arranged to determine said probability of usage on the basis of the distance between the location associated with said item and the onward track from the user's current location as predicted on the basis of the user's recent movement in said space (Mathews ¶62 lines 1 – 12 disclose determining the probability of events based on the predicted trajectory.

Mathews also discloses in lines 1 – 12 allowing for error correction if the user deviates from the expected path. The error correction requires a continuous monitoring of movement in a particular area.)

As per claim 30, Mathews teaches:

The prediction means is arranged to determine said probability of usage using visit history data of previous users that have visited the space, the prediction means including identifying means for identifying relevant visit history data for use in determining said probability of usage by matching the value of an

indicator of the current user's progress around the space with values of that indicator in said visit history data (Mathews ¶¶73 lines 3 - 9).

As per claim 36, Mathews teaches:

Said indicator is the identity of the item whose associated location has been most-recently visited by the user, the identifying means being arranged to identify as said relevant visit history data the visit history data of previous users who visited the same item-associated location as the user's most-recently visited item-associated location, the prediction means being arranged to determine said probability of usage on the basis of portions of said relevant visit history data concerning item usage onward from the user's most-recently visited item-associated location (Mathews ¶¶73 lines 3 - 7).

As per claim 44, Mathew teaches:

The prediction means is arranged to determine said probability of usage using portions of said visit history data that are relevant to the progression onward of the current user, said visit history data being data about one of:

- The items, or groups of associated items, next visited by said previous users (Mathews ¶¶73 lines 3 - 9);
- The items next accessed for presentation, or the groups of items with which those items are associated, by said previous users;
- The items next delivered, or requested for delivery, to the mobile-device caches of said previous users.

As per claim 46, Mathews teaches:

The cache manager is arranged to load an item into the cache on the basis of the probability of usage determination carried out by the prediction means, this item being an item not identified in a set of items having probabilities of usage, as determined by the prediction means, below a threshold value for loading items into the cache (Mathews ¶¶16 lines 14 – 20 discloses "...the guidance component is periodically updated such that predicted events can be updated with respect to the current navigation state." Once the predicted events have been selected they are loaded in cache. This necessarily requires removal of currently loaded cache data).

### ***Allowable Subject Matter***

7. Claims 7 – 19, 21 – 24, 31 – 35, 37 – 43, 45, and 47 - 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and to overcome any objections to the claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6,766,248 Miyahara

6,631,322 Arthur et al.

6,704,649 Miyahara

6,918,013 Jacobs et al.

2005/0043060 Brandenberg et al.

Art Unit: 2188

6,934,628 Harada

6,954,697 Smith

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory P. Hein whose telephone number is 571-272-4180. The examiner can normally be reached on M - F 8-4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/31/2005  
Gregory Hein

*Reginald G. Bragdon*  
REGINALD G. BRAGDON  
PRIMARY EXAMINER